

Appln. No. 09/867,197
Amendment dated Aug. 3, 2004
Regarding Office Action dated May 3, 2004
Docket No. 6169-250

IBM Docket No. BOC9-2001-0015

REMARKS/ARGUMENTS

These remarks are offered in response to the Office Action of May 3, 2004 (Office Action). As this response is timely filed within the 3-month shortened statutory period, no fee is believed due.

In paragraphs 1-2, the Examiner has rejected claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,208,965 to Brown, *et al.* (Brown) in view of U.S. Patent No. 5,712,957 to Waibel, *et al.* (Waibel).

Prior to addressing the rejections on the art, a brief review of the Applicants' invention may be helpful. The Applicants' invention discloses a method for performing speech recognition that can include determining a recognition result for received user speech. The recognition result can include recognized text and a corresponding confidence score. The confidence score of the recognition result can correspond to a predetermined minimum threshold. If the confidence score does not exceed the predetermined minimum threshold, the user can be presented with at least one empirically determined alternate word candidate corresponding to the recognition result.

With respect to the rejections on the art, the Examiner in paragraphs 1 and 2 of the Office Action has rejected claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over Brown in view of Waibel.

Brown discloses a method and apparatus for recognizing an input identifier on the basis of a set of comparison identifiers. With the method and apparatus of Brown, a recognized identifier is provided based upon an input identifier provided by a user according to a first form. A plurality of comparison identifiers is generated on the basis of the recognized identifier, and the user then is prompted to provide the input identifier again, albeit according to a second form different than the first. A second recognized identifier is generated on the basis of the input identifier provided according to the second form, and if a match exists between the second recognized identifier and one of the comparison identifiers, the matched comparison identifier is selected as corresponding to the input identifier.

At page 2 of the Office Action it is stated that Brown discloses "determining a recognition result . . . comprising text and a score (item 30), comparing [the] score (claimed

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conditional probability) to a threshold (col. 11), and, if the score does not exceed the threshold, presenting [a] user with at least one alternate word candidate or character corresponding to the recognition result (item 65)." The Applicants respectfully disagree with this characterization of Brown.

Brown nowhere presents the user with at least one alternate word candidate or character in response to a recognition result. Instead, Brown elicits input from a user in one form, and "then prompts the user to provide the input identifier again, but this time in a different form than the first." (Col. 2, lines 38-40; see also Col. 6, lines 32-51, Col. 12, lines 6-50, and Figures 3 and 5.) Brown's seriatim prompting for user inputs is simply not a presentation of an alternate candidate as recited in each of independent Claims 1, 10, and 20.

The functional result of Brown is also fundamentally different from that which is accomplished by the inventors' application. For example, Brown relies on a plurality of independent events, each as noted being subsequent to additional user inputs. Applicants' invention, in contrast, relies on a single recognition event, which results in a presentation to the user. Accordingly, a user of Applicants' invention does not need to take multiple actions to produce a single recognition result. This is no way comparable to Brown.

Moreover, contrary to the assertion at page 2 of the Office Action, Brown does not teach or suggest a response based on comparison of a score with a threshold. The thresholds mentioned in Brown have nothing to do with comparing a score corresponding to a recognition result with a predetermined minimum threshold, as recited in each of the independent claims. Rather, the thresholds mentioned in Brown relate to conditional probabilities that dictate the predetermined values of Brown's confusion matrices. Indeed, Brown makes no mention of any type of comparison with respect to these conditional probabilities. Brown instead explicitly states that "[t]he particular probabilities are determined in advance through experimentation," and that "*before* a particular recognizer is to be used in the system [shown in FIG. 1], a confusion matrix corresponding to that *particular recognizer* must first be populated." (Col. 5, lines 59-64.) (emphasis supplied.) This is no way similar to comparing a confidence score based on a recognition result to a predetermined minimum threshold as taught by the Applicants' invention.

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Accordingly, this aspect of Brown also can not be read as teaching the features found in the Applicants' invention and recited in each of independent Claims 1, 10, and 20.

Apart from the minimum threshold to which a score may be compared, the Examiner notes at page 2 of the Office Action that the score itself mentioned in Brown is not a confidence score as recited in each of the independent claims. Nonetheless, Waibel is asserted as disclosing such a score.

Waibel discloses a method of repairing machine-recognized speech that includes the steps of receiving from a recognition engine a first n-best list of hypotheses and scores for each hypothesis generated in response to a primary utterance to be recognized. An error within the hypothesis having the highest score is located, and control signals are generated from the first n-best list. These, in turn, are provided to the recognition engine to constrain the generation of a second n-best list of hypotheses. The scores for the hypotheses in the first n-best list are combined with the scores for the hypotheses in the second n-best list, and the hypothesis having the highest combined score is selected as the replacement for the located error.

Applicants respectfully assert that there is no motivation for combining Waibel with Brown. More specifically, the combination would undercut the very purposes for which the methods of each is intended. Brown, as already noted, is intended to match identifiers based upon a series of system-prompted user inputs. Waibel is intended to repair machine-recognized speech, and, in doing, relies on the rapidity of electronic processing to compare n-best results generated from two independent recognition events. (Col. 5, lines 30-59.) The Waibel process, as amply demonstrated by the example in Col's. 6-9, can entail an enormous number of comparisons. Combining Waibel with Brown, which relies on a series of user-supplied inputs in successively modified form, would yield an unworkable approach since a user would be easily overwhelmed with such an enormous number of prompts.

Accordingly, Applicants respectfully maintain that there is no motivation, teaching, or suggesting for combining Waibel with Brown. More fundamentally, even when combined, the references fail to disclose Applicants invention. Neither Brown nor Waibel teaches, for example, presenting a user with at least one empirically determined alternate word candidate corresponding to a recognition result as recited in each of the independent claims. Nor do either

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of the references teach or suggest comparing a confidence score to a predetermined minimum threshold as recited in each of the independent claims.

Applicants therefore respectfully request that the rejection of each of independent Claims 1, 10, and 20 under U.S.C. §103(a) be withdrawn. Whereas each of the dependent claims recite yet additional features, Applicants further request that the rejection of these claims under U.S.C. §103(a) be similarly withdrawn.

In light of the above, Applicants believe that this application is now in full condition for allowance. Allowance is therefore respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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